

REMARKS – General

By the above amendment, Applicant has amended the title to emphasize the novelty of the invention.

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Also, the applicant has rewritten all the claims to define the invention more particularly and distinctly so as to overcome the technical rejections and define the invention patentably over the prior art.

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The Claim Objections Has Been Overcome

The last O.A. rejected Claims 3. The Claim 3 has been rewritten. Applicant requests reconsideration of this objection.

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The References And Differences Of The Present Invention Thereover

Applicant will discuss the reference and the general novelty of the present invention and its unobviousness over the reference.

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Mahany [US 5,546,397] disclosed a “High reliability access point for wireless local area network”, with a AP designed with two wireless interfaces and one wired LAN interface. The purpose of the design is:

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- 1) to provide the redundant link for AP to LAN when wired LAN connection is failed.
- 2) To provide better coverage for the client computers (which, has only one wireless LAN card).

The applicant's current invention provides a dual-channel redundant wireless link utilizing a pair of Dual-channel Redundant wireless network link (RFWL) devices.

One of them functions as Service Equipment, the other one functions as Client Equipment. Both SE and CE have two wireless networking channels. Comparing the SE with Mahany's AP, they both have similar hardware architecture; however, the system functions are different. Mahany (col.6, lines 11-24)

5 dedicated one adapter (39 or 42) to communicate between the APs, thus to provide the connection of AP to main LAN via wireless link when wired LAN link is not available. In this instance, if the wireless connection is failed, then the AP will be complete off the connection, and the computers that it services will be complete off main network connections. The SE of the applicant's current

10 invention has two wireless networking channels that are communicating with the same remote CE (Fig.3, Fig.8). Both wireless links are redundant to each other even if one of the channels is off, the SE still communicating with remote CEs. Comparing CE of the applicant's present invention to the AP of Mahany, CE does not provide wireless access to wireless LAN computers like the AP does,

15 however, CE has two wireless communication channels to strengthen the communication between CE and SE (fig.3, fig.4). The redundant link formed by SE and CE ensures the computers of the client network (Fig.3 312) has much more reliable connection to the main network (Fig.3 311). Further, comparing both the applicant's current invention (Fig.4) and Mahany's disclosure (Fig.5) at

20 higher networking architecture level, Mahany's disclosure does not provide high reliable connection to remote AP 70 and the wireless LAN from that device. In contrast, the applicant's current invention is capable to provide a plurality of remote networks (413, 412) with high reliable networking connections (401, 402) with redundancy.

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The following are some key differences:

- 1) Mahany does not provide redundancy to wireless connection itself. When the LAN connection is broken, and the dedicated channel is also failed, the AP is unfunctional.

- 2) Mahany does not provide the link monitor of wireless connection. In the real world, when the channel is interfered / jammed, even though the communication may still be reestablished via the wireless channel, however, the useable networking communication may not work well due to heavy interference. In another word, Mahany's disclosure became unfunctional when the backup channel is interfered or jammed.
- 3) Mahany provides a wireless to wired connection to improve the reliability by providing a wireless backup connection between the AP and infrastructure (fig.3), however, in the real world of application, a wireless link is much easier to be interfered by other resources. In another word, with the limited wired connection distance (fig.3, 33), Mahany implemented two APs with four wireless radios working in the same channel. The system itself contains very serious self interference, multi-path and jamming problem. Even if Mahany also implemented some sort of antenna diversity, then the purpose of providing coverage became an issue. If the antenna diversity is implemented, then the AP's function "advantage of receive two concurrent messages (col.5 ln.36-39) or "one wireless adapter is transmitting, the other wireless adapter can operate as a promiscuous listener" (col.5 ln.19-21) is impossible. Further, the function of "one wireless adapter is transmitting, the other wireless adapter can operate as a promiscuous listener" (col.5 ln.19-21) is useless. Because of, when wireless signal left first radio and picked up by second radio in the same AP, if the message received is not the same as sent, the system has no way to tell the sending radio having problem of the receiving radio having problem. In short, Mahany's disclosure may not have practical use.
- 4) With the applicant's current invention, it is possible to utilize the wireless communication to make mission critical application where wired network is not available, e.g. when the network distance is too far of reach of a wired networking connection. Because of, the applicant's current invention

provide a solid redundant wireless communication link (fig.3), the communication between SE and CE will continue when on of the channel is having problem of interference or bad hardward.

- 5 5) The applicant's current invention provide a redundancy for networking communication via wireless link, the link monitoring feature is able to make sure the communication always carried out on the best sub-link, even if the other link still communicating.

10 In conclusion, that the applicant's current invention provide wireless networking communication redundancy and link optimization. The prior art of Mahany dose not.

The Claim Objections Has Been Overcame

- 15 The last O.A. objected the Claim 3, because the dependency of Claim 3 to Claim 1. Claims 1-5 have been rewritten. Applicant requests reconsideration of this objection.

The Claim Rejections Under 35 USC § 102 Has Been Overcame

The last O.A. rejected the Claims 1-5 as being unpatentable "over Mahany [US 5,546,397]". Claims 1-5 have been rewritten. Applicant requests reconsideration of this rejection, as now applicable to claim 6-15, for the following reasons:

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Regarding claim 1, the last OA points out that "Mahany teaches a redundant wireless network link ...(see figure 3, col.1, In 43-55)". The APs of Mahany do have some similarity to the SE and CE of the applicant's current application. However, one of the wireless adapters (fig.3 39 or 42) is the dedicated for the

redundancy backup of the infrastructure (fig.3 33); the other non dedicated wireless adapter (fig.3 38 or 43) provide communication to the roaming computer devices. (col.6 ln. 4-23). The two wireless networking channels of the applicant's current invention are mutual backup to each other to provide the

5 redundancy for the communication between the SE and CE.

The applicant has rewrite the claim 1 to reflect the differences and novelty over prior art. Applicant respectfully requests reconsideration of this rejection

10 **Regarding claim 2**, the last OA points out that “ Mahany further teaches the SE and the CE communicate to each other form a redundant wireless networking link (see fig.3, 35, 36, col.1, ln.43-55)”. The applicant agrees that Mahany did provide a redundant wireless networking link. However, the wireless redundant link Mahany provided was the backup link for the AP 41 when the wired

15 connection of AP 41 to HOST COMPUTER NETWORK is failed. This is complete different then the solution of the applicant's current invention. The applicant's current invention provides a redundant link between SE and CE, so as to provide a redundant link between the main network (fig.3, 311) and client network (fig.3, 312).

20 In conclusion, the redundancy purpose of Mahany and the applicant's current invention are different. Therefore, the feature, method and the applications of the devices are different.

The applicant has rewrite the claim 2 to reflect the differences and novelty over prior art. Applicant respectfully requests reconsideration of this rejection.

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Regarding claim 3, the last OA pointed out that “Mahany further teaches the access point has two of its wireless networking radio unit working simultaneously (see col.4, ln. 1-12)”. Even though Mahany dose provide two radio working simultaneously. However, in detail, these two radio are required to be at the

same channel (col.4 ln.9) or at the same hopping sequence and be mutually synchronized to that hopping sequence due to application of Mahany. In the applicant's current invention, the two wireless networking radio of SE do not required to be exact the same type and working at same mode, these two
 5 wireless networking channels are on working mode at same time for communicating with remote correspondent radio or ready to communicate with remote correspondent radio. .

In conclusion, the way and the purpose of having both radios working
 10 simultaneously are different between Mahany and the applicant's current invention.

The applicant has rewrite the claim 3 to reflect the differences and novelty over prior art. Applicant respectfully requests reconsideration of this rejection.

15 **Regarding claim 4**, the last OA pointed out that "Mahany further teaches the CE only has one of the its wireless networking radio unit communicating with SE, and the other one of it wireless networking radio unit will take over the communication with SE when the first link is failed(see col.6, ln.4-63)." As discussed above in "**References And Differences**", Mahany provides a wireless
 20 link between the AP and infrastructure (33) by dedicating one radio (fig.3 39) to communicating with the dedicated radio of remote AP (fig.3 42) when break in LAN happened (Fig.3 45). In this method, two radio in the same AP (fig.3 42, 43) are not redundant to each other. In another, when one remote AP (fig.5, 60) is communicating to remote AP (fig.5, 70) with one dedicated radio (fig.5, 62). The
 25 communication between APs (fig.5, 60 and 70) is non redundant. If one of the dedicated radios (fig.5, 62, 72) failed, then the communication between two APs is lost. In the applicant's present invention, when one of the wireless networking channel of CE is communicating with SE, the other channel is at standby backup

mode. If, the current communication is below satisfaction or failed, the system will switch to the second channel to continue the communication.

In conclusion, even without motioning the purpose and function difference
 5 between the prior art of Mahany and the applicant's current invention, there is no redundancy when 2 AP of Mahany are communicating to each other with one radio. In contrast, the wireless communication between SE and CE of the applicant's current invention has full redundancy. Therefore, the wireless communication between SE and CE is much more reliable then the wireless
 10 communication between 2 APs of Mahany.

The applicant has rewrite the claim 4 to reflect the differences and novelty over prior art. Applicant respectfully requests reconsideration of this rejection.

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Regarding claim 5, the last OA pointed out that "Mahany teaches a method of redundant wireless link comprising: providing a redundant wireless networking SE and ready to communicate with two wireless networking channels to remote CEs (see Fig.3 access point 35, access point 36, col.6, ln.24-36, it is inherently
 20 that the network should be supported plurality of client equipment)". The best understanding of the applicant, according to Mahany (fig.3, fig.5), one AP of Mahany (fig.3, 35) can only communicate with one other AP (fig.3, 36) via corresponding dedicated wireless adapter (39 and 42, respectively) to provide a wireless repair of the break (45) in the infrastructure (33).(see col.6, ln4-8, ln,24-
 25 36). The last OA further pointed out that "... setting up the CE to communicate with SE in one channel (see col.6, ln.4-23), running the link quality monitoring software program in CE (see fig.3, CPU, col.6, ln.4-23), when link quality monitoring system detected the link quality is below requirement or the link is out of work, switching the CE to work with the second wireless networking channel

and communicate to the second channel of the SE, communicating the CE continually with the SE, thus to keep the two network behind the SE and the CE linked together without fail (see col.6, ln.4-47). However, as discussed above in

"References And Differences", Mahany provides a wireless link between the

5 AP and infrastructure (33) by dedicating one radio (fig.3 39) to communicating with the dedicated radio of remote AP (fig.3 42) when break in LAN happened (Fig.3 45). In this method, two radios in the same AP (fig.3 42, 43) are not redundant to each other. Further, Mahany only has the method of detecting wired infrastructure break. (fig.3,45, col.6, ln.5-8). Mahany neither provide a
10 method of monitoring the wireless link quality between the APs, nor needed to provide a method of monitoring the wireless link quality between the APs, because he only need to monitor the connection between the AP(fig.3, 36) and infrastructure (fig.3, 33). Still further, because of the purpose of the wireless redundancy of Mahany is for providing the communication between remote AP
15 and infrastructure, the method Mahany teaches in detail (col.6, 4-23, and 51-63) is complete different the method of the applicant's current invention.

The applicant has rewrite the claim 4 to reflect the differences and novelty over prior art. Applicant respectfully requests reconsideration of this rejection.

20 **Conclusion**

For all of the above reasons, the applicant submits that the specification and claims are now in proper form, and that the claims all define patentably over the prior art. Therefore he submits that this application is now in condition for

25 allowance, which action he respectfully solicits.

Conditional Request For Constructive Assistance

Applicant has amended the specification and claims of this application so that they are proper, definite, and define novel structure which is also unobvious. If, for any reason this application is not believed to be in full condition of allowance, Applicant respectfully request the constructive assistance and suggestions of the
5 Examiner pursuant to M.P.E.P. § 2173.02 and § 707.07(j) in order that the undersigned can place this applicant in allowable condition as soon as possible and without the need for further proceedings.

Very respectfully,

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